

U.S. Patent Application Serial No. 10/566,719

Amendment filed April 15, 2009

Reply to OA dated October 16, 2008

AMENDMENTS TO THE CLAIMS:

Please cancel claims 1, 2 and 4-20 without prejudice or disclaimer, and add new claims 21-36, as follows. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20 (Canceled).

Claim 21 (New): A method for producing an epoxy resin composition, comprising:

reacting an aliphatic or alicyclic polyamine-based compound (A), which has at least one of an amino group and an imino group in the molecule, with a boric acid-based compound (B) represented by the following general formula (1) to produce a polyamine borate which is a curing agent for an epoxy resin;

mixing the polyamine borate and an epoxy resin having two or more epoxy groups in the molecule in an organic solvent,



wherein n represents an integer of 0 to 3, R represents an alkyl group represented by $\text{C}_m\text{H}_{2m+1}$, and m presents an integer of 1 to 10.

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Claim 22 (New): The method for producing an epoxy resin composition according to claim 21, wherein the epoxy resin has an epoxy equivalent of 100 to 1000.

Claim 23 (New): The method for producing an epoxy resin composition according to claim 21, further comprising:

removing the organic solvent after the polyamine borate and the epoxy resin are mixed in an organic solvent to form an epoxy resin composition.

Claim 24 (New): The method for producing an epoxy resin composition according to claim 21, wherein a ratio of the content of a nitrogen-containing group of the polyamine-based compound (A) to the content of boron of the boric acid-based compound (B) is from 1:1 to 1:6 in terms of a molar ratio.

Claim 25 (New): The method for producing an epoxy resin composition according to claim 21, wherein the content of the polyamine borate is from 4 to 120 parts by mass based on 100 parts by mass of the epoxy resin.

Claim 26 (New): The method for producing an epoxy resin composition according to claim 21, wherein the content of boron in the polyamine borate is from 0.2 to 10 parts by mass based on 100 parts by mass of the epoxy resin.

Claim 27 (New): The method for producing an epoxy resin composition according to claim 21, wherein the organic solvent contains a lower alcohol.

Claim 28 (New): The method for producing an epoxy resin composition according to claim 21, wherein a curing agent other than the polyamine borate is further mixed when the polyamine borate and the epoxy resin are mixed.

Claim 29 (New): The method for producing an epoxy resin composition according to claim 28, wherein the curing agent other than the polyamine borate is at least one selected from the group consisting of dicyandiamide, an aromatic polyamine, a phenol novolak resin and an imidazole compound.

Claim 30 (New): The method for producing an epoxy resin composition according to claim 21, further comprising:

conducting a heat-treatment of a mixture, in which the polyamine borate and the epoxy resin having two or more epoxy groups in the molecule are mixed in the organic solvent, in a solution state without being gelled.

Claim 31 (New): A method for producing a molded article, which comprises:
producing the epoxy resin composition according to claim 22, and

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conducting compression-molding of the epoxy resin composition under heating to form a molded article.

Claim 32 (New): A method for producing a heat-resistant laminate sheet, which comprises:
producing the epoxy resin composition which is formed according to claim 21;
forming an uncured coating film layer of the epoxy resin composition on the surface of a heat-resistant substrate sheet;
laying another heat-resistant substrate sheet on the uncured coating film layer; and
curing the uncured coating film layer after thermal contact bonding for the heat-resistant substrate sheets is conducted.

Claim 33 (New): The method for producing a heat-resistant laminate sheet according to claim 32, wherein the heat-resistant laminate sheet is a copper-cladded laminate.

Claim 34 (New): A method for producing an epoxy resin composition, comprising:
reacting a polyamine-based compound (A), which has at least one of an amino group and an imino group in the molecule, with a boric acid-based compound (B) represented by the following general formula (1) to produce a polyamine borate which is a curing agent for an epoxy resin;
mixing the polyamine borate and an epoxy resin having two or more epoxy groups in the molecule in an organic solvent,

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wherein n represents an integer of 0 to 3, R represents an alkyl group represented by $\text{C}_m\text{H}_{2m+1}$, and m presents an integer of 1 to 10.

Claim 35 (New): The method for an epoxy resin composition according to claim 34, wherein n represents an integer of 1 to 3.

Claim 36 (New): The method for an epoxy resin composition according to claim 34, wherein the polyamine-based compound (A) is an aromatic polyamine.